Progress Energy

August 4, 2009

The Honorable Charles Terreni
Chief Clerk and Administrator
Public Service Commission of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

RE: SCPSC Docket No. 2008-447-EG
Direct Testimony of Laura A. Bateman, Rebecca S. Harrison and B. Mitchell Williams

Dear Mr. Terreni:

Enclosed for filing in the above-referenced docket is the Direct Testimonies of Laura A. Bateman, Rebecca S. Harrison and B. Mitchell Williams on behalf of Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc.

Yours very truly,

Len S. Anthony
General Counsel
Progress Energy Carolinas, Inc.

LSA:mhm

cc: Ms. Nanette S. Edwards
Mr. John Flitter
All Parties of Record

STAREG587

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

DIRECT TESTIMONY OF

LAURA A. BATEMAN

ON BEHALF OF

PROGRESS ENERGY CAROLINAS, INC.

DOCKET NO. 2008-447-EG

Q. MS. BATEMAN, PLEASE STATE YOUR FULL NAME, BUSINESS ADDRESS AND POSITION OF EMPLOYMENT.

A. My name is Laura A. Bateman and my business address is 410 South Wilmington Street, Raleigh, North Carolina. I am Manager-Utility Regulatory Planning for Progress Energy Carolinas, Inc. (PEC).

Q. MS. BATEMAN, PLEASE SUMMARIZE BRIEFLY YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I obtained a bachelors degree from the University of Massachusetts at Amherst in 1994 and an MBA degree from the University of North Carolina at Chapel Hill in 2003. Since 2003, I have been employed at Progress Energy in a variety of roles in Risk Management, Treasury, and Regulatory Planning. I have been in my current position as Manager of Utility Regulatory Planning since September 2007. In this position, I have

responsibility for PEC's rate design and administration and for the Company's cost of service development.

Q. MS. BATEMAN, HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE THIS COMMISSION?

A. Yes. I presented both direct and rebuttal testimony in Docket No. 2008-385-E regarding Net Metering and rebuttal testimony in Docket No. 2008-251-E regarding PEC's cost recovery for energy efficiency and demand side management costs.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to respond to the Commission's request for pre-filed testimony concerning implementing the requirements of Section 1307 (State Consideration of Smart Grid) and Section 532 (Energy Efficiency Programs) of the Energy Independence and Security Act of 2007 ("EISA"). Specifically, I will address the federal standards outlined in Section 532 of EISA that relate to rate design modifications to promote energy efficiency investments (Paragraph 17). I will demonstrate PEC's current rate designs and existing and planned energy efficiency and demand response programs adequately address the rate design requirements of

Section 532 of EISA to encourage the conservation of energy, optimize the efficient use of facilities and resources and offer equitable rate options to retail customers. I will also address and comment on the standards outlined in Section 1307 of EISA that relate to smart grid information and communicate what information is currently available to PEC customers.

Q. WHAT STANDARDS DOES SECTION 532 OF EISA INSTRUCT THE COMMISSION TO CONSIDER IN EVALUATING UTILITY RATE DESIGNS?

A. Section 532 of EISA amends PURPA by adding Sections 111(d)(16)-(17) and directs the Commission to consider in Paragraph 17(B):

i. Removing throughput incentives and other regulatory and management disincentives to energy efficiency;

ii. Providing utility incentives for the successful management of energy efficiency programs;

iii. Including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives;

iv. Adopting rate designs that encourage energy efficiency for each customer class;

v. Allowing timely recovery of energy efficiency related costs; and

vi. Offering home energy audits, offering demand response programs, publicizing the financial and environmental benefits associated with making home energy efficiency improvements, and educating home owners about all existing federal and state incentives, including the availability of low cost loans, that make energy efficiency improvements more affordable.

Q. DO EXISTING POLICIES IN SOUTH CAROLINA ENCOURAGE UTILITIES TO PURSUE THESE OBJECTIVES CURRENTLY?

A. Yes. Cost recovery and incentives related to energy efficiency (Items i., ii., and v. of paragraph (17)(B)) are addressed by S.C. Code Ann. § 58-37-20 (Supp. 2008) and in the cost recovery mechanism approved for PEC in Commission Order No. 2009-373 in Docket No. 2008-251-E. The statute and cost recovery mechanism all support utility incentives for the successful management of energy efficiency programs and timely recovery of energy efficiency related costs through the annual DSM/EE rider. In addition, the cost recovery mechanism specifically removes the throughput incentive by allowing the utility to recover net lost revenues associated with its DSM/EE programs. This provision of the mechanism effectively removes the utility's disincentive to pursue energy efficiency.

Q. ITEMS III. AND IV. OF PARAGRAPH (17)(B) ENCOURAGE RATE DESIGNS THAT PROMOTE ENERGY EFFICIENCY FOR EACH CUSTOMER CLASS AND ENCOURAGE INCLUDING ADOPTION OF ENERGY EFFICIENCY AS ONE OF THE GOALS OF RATE DESIGN. HOW ARE THESE OBJECTIVES REFLECTED IN PEC'S RATES?

A. First, almost all of PEC's rates are designed so that the variable component of the rate recovers both the variable cost and a portion of the Company's fixed costs. While energy efficiency may not have been the original driver of this design, the result is higher variable rates and, therefore, a higher customer incentive to adopt energy efficiency than would be the case under a more pure cost-based straight fixed/variable rate design. In addition, almost all of PEC's rates are seasonally differentiated (higher in the summer months). This design encourages customers to conserve during the months of highest demand on PEC's system and highest marginal costs.

Furthermore, time-of-use tariffs are available to all customer classes and encourage the shifting of usage to off-peak periods with an emphasis on reducing usage during the summer peak.

PEC also offers special incentives for customers to curtail usage during peak times. EnergyWise, a new residential appliance direct load

control program, builds on the Company's earlier experiences with this rate design. The program uses new control technologies to improve the effectiveness of load reductions and enhances customer acceptance of this rate option. Voluntary load control programs are also available to non-residential customers with a minimum requirement of 75 kW that offer a lower rates if usage is reduced during peak hours. General Service customers with at least 1,000 kW of demand may also volunteer to participate in the Large General Service Real Time Pricing (Experimental) Schedule LGS-RTP and receive price signals that vary hourly based upon PEC's anticipated cost to supply the next kWh of electricity. The highest RTP rates, and therefore highest incentive to reduce usage, are experienced near PEC's peak hours.

Q. ARE THERE OTHER PROGRAMS AVAILABLE THAT ENCOURAGE CONSUMERS TO REDUCE USAGE?

A. Yes. PEC offers rate designs to incent customers to consume less electricity or to utilize technology to reduce usage. They include the Residential Energy Conservation Discount Rider that offers a lower rate for any residence that achieves an Energy Star certification and the Small General Service Thermal Energy Storage Schedule that encourages the installation of thermal storage for space conditioning. Standby service riders are also

applicable to support the installation of energy efficient cogeneration and provide a replacement source of power when a customer's generation is not operating. For a small monthly charge, the Meter-Related Optional Programs Rider offers upgraded metering that allow all General Service customers to analyze their electrical usage and implement steps to reduce consumption and lower their cost for electricity.

This wide array of tariffs and riders demonstrate that PEC's rate designs encourage energy efficiency for each customer class. In addition, due to the cost recovery and utility incentives for DSM/EE programs mentioned earlier, PEC has every incentive to support the efforts of its DSM/EE organization through rate design and to encourage adoption of energy efficiency.

Q. PLEASE DESCRIBE PEC'S EFFORTS TO OFFER HOME ENERGY AUDITS, OFFER DEMAND RESPONSE PROGRAMS, PUBLICIZE THE FINANCIAL AND ENVIRONMENTAL BENEFITS ASSOCIATED WITH MAKING HOME ENERGY EFFICIENCY IMPROVEMENTS, AND EDUCATE HOME OWNERS ABOUT ALL EXISTING FEDERAL AND STATE INCENTIVES, INCLUDING THE AVAILABILITY OF LOW COST LOANS, THAT MAKE ENERGY EFFICIENCY IMPROVEMENTS MORE AFFORDABLE?

A. PEC expanded its DSM/EE customer education efforts in 2007 with its Save-The-Watts educational program. Primarily targeted towards residential customers, the Save-The-Watts program is designed to help customers use energy more wisely, as well as provide them with the specific tools and tips to help them save energy and money. The educational program has been aggressively promoted via TV, radio, and print media in an attempt to reach all residential customers. A core component of the program is an interactive web site, *savethewatts.com*. Here customers can find energy efficiency tips, information about PEC's energy efficiency programs, and calculators to help consumers identify the potential savings and environmental benefits associated with energy efficiency. In addition to the comprehensive educational initiative described above, PEC has submitted nine DSM/EE programs for approval by the Commission and will continue to develop additional programs for consideration. In the development of the marketing plans for these programs, PEC plans to promote any applicable Federal and State tax incentives that may be leveraged by the homeowner in conjunction with PEC's applicable rebates/incentives. The intent is to further educate the customer about the potentially improved financial viability of the energy efficiency investment from their perspective, and thereby increase participation in the utility program.

Q. IS ANY FURTHER ACTION BY THE COMMISSION NECESSARY TO IMPLEMENT THE RATE DESIGN STANDARDS IN SECTION 532 OF EISA?

A. No. PEC's cost recovery mechanisms, rate designs, and DSM/EE efforts comply with the requirements of this section.

Q. TURNING TO SECTION 1307 OF EISA, WHAT SMART GRID INFORMATION IS TO BE PROVIDED TO CUSTOMERS UNDER THIS STANDARD?

A. Section 1307 of EISA proposes that all electricity purchasers be provided access, either written or electronic, to information concerning the following:

i) Prices

Purchasers and other interested parties provided with information on -

i. Time-based electricity prices in the wholesale electricity market; and

ii. Time-based electricity retail prices or rates that are available to the purchasers

ii) Usage

Purchasers provided with the number of electricity units, expressed in kWh, purchased by them

iii) Intervals and projections

Updates of information on prices and usage offered on not less than a daily basis, including hourly price and use information, where available, and shall include day-head projections of such price information, to the extent available.

iv) Sources

Purchasers and other interested persons provided annually with written information on the sources of the power provided by the utility, to the extent it can be determined, by type of generation, including greenhouse gas emissions associated with each type of generation, for intervals during which such information is available on a cost-effective basis

C. Access

Purchasers are given access to their own information at any time through the Internet and on other means of communication elected by that utility for smart grid applications. Other interested parties would be given access to information not specific to any purchaser through the Internet. Information specific to any purchaser would be provided solely to that purchaser.

Q. WHAT INFORMATION REGARDING PRICES DOES PEC PRESENTLY MAKE AVAILABLE TO ITS CUSTOMERS?

A. Information regarding PEC's rates and tariffs is available through the Company's website. This includes information on time-based retail rates available through the Company's time-of-use rate schedules. The rate information is also included on the customer's bill. Time-based prices in the wholesale electricity market are available from public websites, such as the PJM website, but this information is not specifically distributed by PEC to its customers since it is not relevant for monthly billing to retail accounts.

Q. WHAT USAGE INFORMATION DOES PEC PRESENTLY MAKE AVAILABLE TO ITS CUSTOMERS?

A. All PEC customers have access to their 24-month billing history, including usage, through PEC's website. The analysis tool provided at the website allows the customer to easily compare usage to prior periods and better understand consumption patterns. PEC's monthly bill statement also offers residential customers and the majority of general service customers a graphic display of 12 months prior usage.

Q. WHAT TYPE OF USAGE INTERVAL AND PRICE PROJECTION INFORMATION DOES PEC MAKE AVAILABLE TO ITS CUSTOMERS?

A. PEC offers all General Service customers real time usage information via meter pulses or direct access to the billing meter as set forth in the Meter-Related Optional Programs Rider MROP. This allows the customer to utilize customer-owned software or demand control equipment to reduce consumption. If customers don't desire to acquire their own software, PEC offers the Energy Profiler Online service that allows customers to review their 15-minute interval usage on a next day or monthly basis. This service is also described in Rider MROP. Customers that aren't routinely provided service with a meter capable of recording interval metering may procure this more sophisticated metering under Rider MROP.

In addition, PEC offers an experimental real time pricing schedule to its Large General Service customers to encourage load shifting during higher cost peak periods. These customers have a demand requirement of 1,000 kW and the sophistication necessary to adjust their operating schedule to respond to real time price signals. PEC provides participants access to both 15-minute and hourly interval usage data that is updated on a daily basis to assist these customers in their response decisions. Also, day-ahead projections of hourly rates under this rate schedule are provided via software as well as via a separate Internet website to permit easy access regardless of the customer's location.

Under PEC's current metering infrastructure and processes, hourly usage data is not available for Residential customers; and therefore, access to such information is not available to them. More research is needed to determine whether the cost of creating the infrastructure to obtain and provide such information to residential customers is outweighed by the potential benefits.

Q. WHERE CAN DETAILED INFORMATION REGARDING PEC'S GENERATION STATISTICS BE OBTAINED?

A. PEC's corporate website describes in detail the Balanced Solution strategy that will meet the Carolina's load requirements using both generation and energy efficiency and demand side management resources. The website includes general historic information on generation resources, from both an energy and capacity perspective, and efforts to pursue renewable resources as a key to serving future load growth. The website is available under the "About Energy" tab at:

http://www.progress-energy.com/aboutenergy/powerplants/corpcapabilities.pdf

PEC also regularly reports detailed information regarding generation used to produce electricity for sale to retail customers. These reports include the Uniform Statistical Report available on the PEC website under the Investors menu, the annual Form 1 Reports filed with the FERC, and monthly Fuel

Reports provided to the retail Commissions in North and South Carolina in support of annual fuel adjustment requests. Forecasted fuel information is also available in annual filings with the Commissions regarding the Integrated Resource Plan. All of this information is readily available to the public via the Internet.

Q. HOW CAN CUSTOMERS LEARN ABOUT PEC'S GREENHOUSE GAS EMISSIONS?

A. Progress Energy's Report on Global Climate Change is available on the Company's website under the Environment Menu at www.progress-energy.com/environment/climatechange.asp. This report discusses greenhouse gas emissions issues and Progress Energy's plan to meet growing electricity demand and climate change challenges with a Balanced Solution strategy; this strategy calls for expanding energy efficiency programs, promoting renewable energy resources and investing in state-of-the-art generation technology. PEC's carbon dioxide emissions data from its power plants are reported annually to the US Environmental Protection Agency; the data (along with data from other companies) can be obtained from the EPA's Clean Air Markets Division at www.epa.gov/airmarkets/basic.html. In addition, Progress Energy voluntarily joined The Climate Registry (TCR), a greenhouse gas (GHG) emissions reporting system, and submitted the

Company's 2008 emissions inventory to TCR last month; the TCR data will be publicly available. Finally, the EPA is developing a national GHG emissions inventory reporting system that is expected to become effective in 2010.

Q. SHOULD LIMITS BE PLACED ON THE AVAILABILITY OF USAGE INFORMATION?

A. As previously discussed, PEC believes that usage information should be readily available to all customers to assist in their efforts to manage their electrical usage and control their cost. PEC does not believe that this information should be publicly available to third parties unless authorized by the customer. Indiscriminant access to customer-specific billing and usage data should not be allowed. We believe our customers would object to having this information released without their permission and would view this as a privacy issue. There is the potential to harm customers from a business perspective if released without their permission.

Q. IS ANY FURTHER ACTION BY THE COMMISSION NECESSARY TO IMPLEMENT THE EISA SECTION 1307 SMART GRID INFORMATION STANDARDS?

A. No.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

DIRECT TESTIMONY OF

REBECCA S. HARRISON

ON BEHALF OF

PROGRESS ENERGY CAROLINAS, INC.

DOCKET NO. 2008-447-EG

Q. PLEASE STATE YOUR FULL NAME AND BUSINESS ADDRESS.

A. My name is Rebecca Harrison and my address is Progress Energy Service Company, LLC, 100 E. Davie Street, Raleigh, North Carolina 27601

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Progress Energy Services Company, as the Director – Smart Grid Program Management Office

Q. PLEASE DESCRIBE YOUR DUTIES AS DIRECTOR – SMART GRID FOR PROGRESS ENERGY SERVICES COMPANY, INC.

A. I am responsible for the planning and implementation of PEC's smart grid strategy. This requires the identification and sequencing of smart grid program initiatives, coordinating capital planning efforts, managing the handoff of approved initiatives with project teams and overseeing and monitoring implementation efforts.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND OCCUPATIONAL BACKGROUND.

A. I am a professional engineer with a degree in electrical engineering and an MBA. I have worked in the electric utility industry for over 20 years, primarily in distribution and information technology. I have been working on our smart grid efforts at Progress Energy for several years and led our efforts last year to develop our smart grid strategy.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address the standards the State is required to consider regarding investments in a "smart grid" by Section 1307 of the Energy Independence and Security Act of 2007 (EISA), and to present Progress Energy Carolina's ("PEC") interpretation and position regarding this legislation. In my testimony I will explain the basic elements of a "smart grid," the functionality and anticipated benefits of a "smart grid" and address each of the standards the Commission is required to consider by the EISA. I will also describe what is meant by "smart grid", describe its anticipated benefits and PEC's current approach to developing smart grid.

Q. PLEASE DESCRIBE THE ATTRIBUTES OF A SMART GRID.

A. Our industry has been trying to develop an easy to understand definition for smart grid. As we have worked on a definition of smart grid for Progress Energy, we have described it as "the internet of the energy business."

The EISA defines a "smart grid" as a grid that: (1) has increased use of digital information and controls technology to improve reliability, security and efficiency of the electric grids; (2) employs dynamic optimization of grid operations and resources, with full cyber security; (3) deploys and integrates distributed resources and generation, including renewable resources; (4) develops and incorporates demand response, demand-side resources and energy efficiency measures; (5) deploys "smart technology" (such as real time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices) for metering, communications, concerning grid operations and status, and distribution automation; (6) integrates "smart" appliances and consumer devices; (7) deploys and integrates advanced electricity storage and peak shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal storage air conditioning; and (8) provides customers timely information and control options.

The DOE defines smart grid by the following seven characteristics: 1) enables active participation by consumers; 2) accommodates all generation and storage options; 3) enables new products, services and markets; 4) provides power quality for the digital economy; 5) optimizes asset and

operates efficiently; 6) anticipates and responds to system disturbances; and 7) operates resiliently against attack and natural disaster.

In a nutshell, smart grid describes an electrical transmission and distribution network employing a state-of-the-art digital management system with two-way communication capability to facilitate enhanced grid operating efficiency, reliability and security, including the integration of distributed generation, demand-side management and energy efficiency programs, and smart appliances and interactive control devices.

Q. WHAT ARE THE FORECASTED BENEFITS OF SMART GRID?

A. The key benefits of smart grid initiatives are expected to include enhanced grid efficiency and reliability, easier integration of distributed energy resources, and new opportunities to enable greater customer participation in their purchase, management and use of electricity.

Q. HOW WILL A SMART GRID ENHANCE GRID OPERATIONS, EFFICIENCY AND RELIABILITY?

A. A smart grid will utilize real time information to predict potential failures and identify actual failures. By identifying and characterizing these failures, the impact of these system disturbances will be reduced through improved service restoration response, including automated isolation, targeted and automated dispatching of line crews to repair system and restore service to

impacted customers. This will result in improved system reliability, improved customer satisfaction and reduced costs.

In addition, through the use of this real-time information in conjunction with advanced analytics and automated controls, the system will be optimized to improve efficiency. The system will also be able to monitor, reliably integrate and manage new distributed generation resources, such as solar, wind, biomass, battery storage and PHEVs, to maintain and improve system reliability and power quality.

Q. HOW DOES A SMART GRID ENHANCE THE INTEGRATION OF RENEWABLE RESOURCES INTO THE UTILITY'S RESOURCE MIX?

A. Renewable generation resources such as wind and solar are not dispatchable. They only produce electricity when the wind is blowing or the sun is shining. Thus, the utility must know when these type resources are available so that it can adjust other dispatchable generation accordingly. Without this capability, customers could experience both reduced reliability and power quality created by unmanaged intermittent generation causing fluctuations in the power flow on the grid. To the extent storage technology advances, a smart grid will be able to integrate and control distributed energy storage equipment to enhance the value of distributed renewable generation sources.

Our initial smart grid investments in Distribution System Demand Response (DSDR) create a solid foundation for the integration of distributed energy resources, including renewables, with our distribution grid. As part of the DSDR program we are installing a Distribution Management System (DMS) with sensors and other equipment that will provide real time information regarding the distribution grid such as the connection points for renewable generation sources that will be capable of supplying power back onto the distribution grid. With this information, the DMS will analyze the power flow on the grid. This information along with additional analytics, which will be part of our future planned smart grid investments, will allow PEC to make adjustments to grid operations to maintain stability and reliability to address operational issues introduced by the integration of renewable generation and storage facilities.

Further investments in electric system equipment and operating controls to detect and respond to events on the grid will be needed as well as additional investments in analytics and predictive modeling systems in order to maintain and increase system stability and reliability due to the complexity of integrating myriad of distributed resource options into the distribution system. These investments will also enable PEC to optimize the

operation of its system by coordinating the utility and customer side capabilities to reduce peak demand and improve system efficiency.

Q. PLEASE ELABORATE UPON HOW A SMART GRID MAY ALLOW A UTILITY TO CONTROL END-USE CUSTOMER APPLIANCES, PROVIDE REAL-TIME PRICE SIGNALS, AND REAL-TIME ELECTRICITY CONSUMPTION INFORMATION TO THE END-USE CUSTOMER THUS ENHANCING THE OPPORTUNITIES FOR DEMAND RESPONSE.

A. As mentioned earlier, a smart grid is ultimately envisioned to provide real time two-way communication between the utility and its customers, thus enabling active participation by consumers in the management of their energy use. The utility will be able to provide its customers real time information about their usage and the cost of energy associated with this usage. Such knowledge will give customers the ability to control their usage and reduce their consumption and their peak demand and to shift their electrical demands from peak to non-peak periods, thus allowing them to reduce their electricity costs. Even greater value may be achieved if customers permit the utility to manage some of these functions for them due to the utility's ability to incorporate these actions in its resource planning and operations as well as leveraging these reductions to enhance the

utilization of grid assets. It is envisioned that smart grid will allow customers to choose how they participate in this process.

The investments necessary to provide this functionality include smart meters – defined as meters that record interval demand and consumption data with two way communications to make this data available in real time to both the customer and the utility – and the associated back office systems to support these meters. Smart meters with two-way communication may also serve as a gateway for the utility to send pricing signals or control commands to customer-owned equipment such as appliances, air conditioners, thermostats and water heaters.

Based on customer preferences, customers could choose just to receive information for awareness only in order to avoid any surprises with their monthly electricity bills or they could choose to act on the information and reduce their consumption and/or demand. Customers could also allow the utility to send control signals directly to their equipment to automate their consumption and demand.

Appliance manufacturers are working today to develop and test components that will be built into appliances to receive signals that the utility or the customer can use to control their operation. There are also third party companies developing devices that can be retrofitted in homes to

enable appliances to respond. The industry and other interested stakeholders are currently working together to establish standards to make these communications and control signals common across the industry. These standards are essential so that manufacturers can incorporate these functions efficiently into their products. Once the standards are set and appliances become readily available, a transition period will be necessary, due to the life expectancy of appliances.

In order to incent customers to shift their usage and conserve, it may be necessary for utilities to develop tariffs that give customers a more precise and real time pricing signals that associate the cost of energy being consumed with the price they are paying for that energy. Without these pricing signals, their motivation to change how they use the product may not be impacted favorably. Research and experience is needed to understand fully the demand reduction, load shifting and conservation impact of such tariffs and customers' willingness to participate in order to develop all the potential demand response benefits of smart grid and evaluate the overall cost effectiveness of the investment needed to enable this capability. The pilots that have been conducted to date have demonstrated greater impacts when "smart tariffs" are combined with enabling technologies that allow customers to automate their actions.

Q. HAS PEC PERFORMED ANY RESEARCH REGARDING CUSTOMERS' WILLINGNESS TO ALLOW A UTILITY TO CONTROL THEIR APPLIANCES OR THEIR REACTION TO PRICE SIGNALS?

A. Yes. Research was performed to assist PEC in developing its EnergyWise program. In addition to this research we know from our experience in our Florida service territory that customers are willing to participate in programs such as EnergyWise. Our Florida EnergyWise program is one of the largest in the country with approximately 800 MW of demand response available for winter peak load reduction. In addition, PEC has experience with its customers subscribing to its Real Time Pricing tariff and Time of Use rates.

Based on this information we have direct knowledge that our customers are interested in having options available to them to control their energy usage and bills. Additional research is needed to determine which options are the most effective and accepted by our customers. The sustainability of customers' response to price signals is a question being asked across the industry. Current industry research indicates the sustainability will be linked to how much customers' responses can be automated. Additional research is needed to fully understand customers' sustainable response. Additional research is also needed on how much

control of their appliances, beyond what we are currently doing with direct load control, customers are willing to allow utilities. Additional analysis is needed to determine whether the cost of the technology required to enable this functionality of the smart grid is outweighed by the benefits.

Q. ASSUMING A SMART GRID WILL POSSESS THE FUNCTIONALITY YOU JUST DESCRIBED, IS THAT THE END OF THE ANALYSIS?

A. No. In a document produced by the National Association of Regulatory Utility Commissioners ("NARUC"), entitled "The Smart Grid: Frequently Asked Questions for State Commissioners" by Miles Keogh, issued in May 2009, the framework for evaluating smart grid opportunities is well stated. The factsheet explains that:

> As economic regulators, Commissions are likely to immediately ask questions about the potential cost of Smart Grid and its potential economic benefits. The estimated costs for smart grid vary widely, but perhaps less important to state policymakers than the overall price-tag nationwide is the cost and benefit to ratepayers in their State's utility service territory. While the costs and benefits will vary depending on the State and utility where a proposal is made, it may be useful to consider two variables in valuing a smart grid proposal.

Direct Value: This represents the quantifiable value that will be introduced by components that will immediately improve the efficiency of the system and create cost-benefits, such as distribution optimization, visualization and improved efficiency. This can be considered "direct value" and determining this is relatively straightforward. Moreover its benefits begin to accrue upon deployment, rather than waiting for customer behavior or further component deployment.

Option Value: Some applications rely on additional activities before their value can be fully realized. In some cases, like demand response enabled by smart-prices-to-smart-meters, realizing the value depends on consumers changing their behavior and responding to price. For other applications, such as distributed generation, PHEVs, and appliances that automatically respond to price, technologies and appliances need to be bought, installed, and used by consumers before their value can be fully realized. The addition of smart grid components creates the option for these technologies and activities to be deployed. This "option value", while not directly quantifiable, is nonetheless measurable and should be considered along with direct value components by Commissions as applications for smart grid warrant.

PEC agrees with NARUC. Therefore, as explained above, first further research must be performed to better understand the extent to which customer behavior can be changed through the functionality offered by a smart grid and South Carolina must determine how it will value the more intangible benefits of smart grid included in the discussion of "Option Value" described in the NARUC factsheet.

Q. TURNING TO THE SPECIFIC STANDARDS THE STATES ARE REQUIRED TO CONSIDER BY THE EISA, SHOULD THE STATE'S UTILITIES BE REQUIRED TO CONSIDER AN INVESTMENT IN A QUALIFIED SMART GRID SYSTEM USING THE FOLLOWING FACTORS: TOTAL COST; COST EFFECTIVENESS; IMPROVE THEIR RELIABILITY; SECURITY; SYSTEM PERFORMANCE; AND SOCIETAL BENEFIT BEFORE INVESTING IN NON-ADVANCED GRID TECHNOLOGIES?

A. The EISA does not provide a definition of a "qualified" smart grid system. As explained in the NARUC factsheet referenced above, the smart grid concept can have numerous components, some of which the benefits are easily quantified while others are much more difficult to value. Some envisioned components are not available presently. The ambiguity surrounding the question of what is a "qualified" smart grid investment as

well as the rapidly evolving smart grid enabling technologies, coupled with the specific circumstances of each utility's distribution system make it practically impossible to determine what a "qualified" smart grid investment is. A more appropriate and workable approach is for utilities to first identify the need to be addressed by the investment, and then to consider available options to meet the identified need. Some options may be compatible with the smart grid concept and some may not, but those attributes can be considered and valued as the options are examined.

Again, in order to address this "qualifying" standard, as well as the other EISA standards, we must determine the policy and goals of the State with regard to the less tangible benefits of a smart grid. Historically, it appears the goal of the State with regard to electricity has been the provision of reliable utility service at the lowest reasonable rate. The EISA identified factors of reliability, system performance and security seem consistent with the provision of reliable and safe service. The total cost and cost-effectiveness factors appear to be consistent with the goal of reliable, safe service at the lowest reasonable rate. However, that is not clear. In addition, the "societal benefit" factor introduces a broad new dynamic consideration that must be addressed in resolving this issue.

At this time, it appears that this question can best be answered by requiring utilities to stay abreast of smart grid technology and potential benefits. At a minimum they should implement smart grid projects that improve reliability and reduce costs. The Commission or General Assembly needs to identify those goals and policies that will govern how "societal benefits" are to be considered in making smart grid decisions.

Q. SHOULD THE STATE CONSIDER ALLOWING EACH UTILITY TO RECOVER FROM ITS CUSTOMERS ANY CAPITAL, OPERATING EXPENDITURE OR OTHER COST OF A UTILITY RELATING TO THE DEPLOYMENT OF A QUALIFIED SMART GRID SYSTEM, INCLUDING A REASONABLE RATE OF RETURN ON THE UTILITY'S CAPITAL EXPENDITURES?

A. Yes. A utility is entitled as a matter of state and federal law to rates that allow it a reasonable opportunity to recover its just, reasonable and prudent costs. Thus, if a utility invests in a "qualified" smart grid, it must be allowed a reasonable opportunity to recover these costs, including capital and operations and maintenance costs. If the goal is to encourage utilities to invest in such assets, the utility must be given *timely* recovery of its qualified smart grid expenditures. By timely, I mean annual rate adjustments to recover all smart grid costs.

Q. SHOULD A UTILITY BE ALLOWED TO RECOVER IN A TIMELY MANNER THE REMAINING BOOK VALUE OF ANY COST OF EQUIPMENT RENDERED OBSOLETE BY THE DEPLOYMENT OF A QUALIFIED SMART GRID SYSTEM?

A. Yes. If a utility's prudent investment in a qualified smart grid asset renders existing facilities obsolete, a utility should be allowed to recover the remaining book value of the obsolete equipment and inventory through an annual rider to its rates. Again, under Federal and South Carolina law, a utility is entitled to a reasonable opportunity to recover its just, reasonable and prudent cost.

Q. IS ANY FURTHER ACTION BY THE COMMISSION NECESSARY TO IMPLEMENT THE EISA SECTION 1307 SMART GRID INVESTMENT STANDARDS?

A. Not at this time.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

DIRECT TESTIMONY OF

B. MITCHELL WILLIAMS

ON BEHALF OF

PROGRESS ENERGY CAROLINAS, INC.

DOCKET NO. 2008-447-EG

Q. PLEASE STATE YOUR FULL NAME AND BUSINESS ADDRESS.

A. My name is B. Mitchell Williams and my address is 410 South Wilmington Street, Raleigh, North Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Progress Energy Services Company, LLC as Manager, Regulatory Affairs for Progress Energy Carolinas ("PEC").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND OCCUPATIONAL BACKGROUND.

A. I graduated from North Carolina State University with a B.S. Degree in Agricultural Engineering in 1969. From 1969 to 1973, I was employed as an engineer in transmission and distribution engineering with Virginia Electric & Power Company. In 1973, I joined Carolina Power & Light Company ("CP&L") and have since held a variety of positions in customer service, transmission engineering, system planning & operations, demand-side management ("DSM"), rates and regulatory affairs. I have held various

leadership and management roles in regulatory affairs since 1996, currently serving as Manager of Regulatory Affairs. I have served on numerous industry groups and committees related to marketing, DSM, rates and regulatory affairs at the Edison Electric Institute and the Southeastern Electric Exchange. I currently serve on the Board of Directors of Palmetto Clean Energy and NC GreenPower . I am also a member of the Energy Advisory Committee for the South Carolina Energy Office.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address the integrated resource planning standards added to the Public Utility Regulatory Policies Act of 1978 (PURPA) by Section 532(a)(16) of the Energy Independence and Security Act of 2007 (EISA), and to present PEC's interpretation and position regarding this requirement. In my testimony I will explain PEC's conclusion that the integrated resource planning standards are already met in South Carolina and no further action is needed by the Commission.

Q. WHAT ARE THE INTEGRATED RESOURCE PLANNING STANDARDS PROPOSED IN EISA?

A. Section 532 of EISA amended Section 111(d) of PURPA by adding a new paragraph:

(16) Integrated Resource Planning - Each electric utility shall:

(A) integrate energy efficiency resources into utility, State and regional plans; and

(B) adopt policies establishing cost-effective energy efficiency as a priority resource.

Pursuant to PURPA, the states are directed to consider adoption of the integrated resource planning standards.

Q. ARE THESE STANDARDS ALREADY MET IN SOUTH CAROLINA?

A. Yes.

Q. HOW ARE ENERGY EFFICIENCY RESOURCES ALREADY INTEGRATED INTO UTILITY, STATE AND REGIONAL PLANS?

A. Existing State law and Commission procedures already require the integration of energy efficiency resources into utility and State plans. Specifically, Sections 58-37-10 through 58-37-40 of the South Carolina Code of Laws, as well as the Commission's current procedures contained in Order No. 98-502, require utilities providing electricity in South Carolina to engage in integrated resource planning and to use the least cost mix of demand-side and supply-side resources to meet the electricity needs of their customers. Pursuant to these requirements, utilities annually file IRPs with the Commission. These IRPs include long-range forecasts of load growth

and the cost-effective mix of supply-side and demand-side resources to meet the forecasted load. The resource mix explicitly includes renewables and cost-effective energy efficiency programs as an integral part of the long-range plans. The utility IRPs also are considered in joint planning studies and coordination by regional utilities through entities such as VACAR and SERC.

Q. HAS THE STATE ALREADY ADOPTED POLICIES ESTABLISHING COST-EFFECTIVE ENERGY EFFICIENCY AS A PRIORITY RESOURCE, AS PROPOSED IN THE SECOND STANDARD?

A. Yes. In addition to Sections 58-37-10 through 58-37-40 of the South Carolina Code of Laws and the Commission's IRP requirements which require utilities providing electricity in South Carolina to use the least cost mix of demand-side and supply-side resources to meet the electricity needs of their customers, the Commission has adopted a Demand-Side Management and Energy Efficiency (DSM&EE") cost recovery procedure for PEC that encourages implementation of cost-effective DSM&EE programs. The Commission is considering similar proposals from other electric utilities.

Q. SHOULD THE COMMISSION TAKE ANY FURTHER ACTION TO IMPLEMENT THE INTEGRATED RESOURCE PLANNING STANDARDS?

A. Based upon actions already taken in South Carolina, including state laws, Commission requirements and utility practices, no further action is needed by the Commission. Clearly, the PURPA Section 11(d)(16) integrated resource planning standards added by EISA Section 532 are already met in South Carolina.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition of the Office of Regulatory Staff to Establish Docket to Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) and Section 532 (Energy Efficiency Programs) of the Energy Independence and Security Act of 2007	)	**CERTIFICATE OF SERVICE**

I, Len S. Anthony, hereby certify that copies of PEC's Direct Testimonies of Laura A. Bateman, Rebecca S. Harrison and B. Mitchell Williams have been either e-mailed or placed in the U. S. Mail on this date, to the parties of record at the addresses shown below, with sufficient postage attached:

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This the 4th day of August, 2009.

Len S. Anthony, General Counsel
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